

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A computer system to virtually organize content of a plurality of disparate content repositories, folders of the plurality of disparate content repositories, work items of a plurality of disparate workflow systems, and queues of the plurality of disparate workflow systems, comprising:

a processing unit; and

a memory comprising:

a virtual repository comprising at least one virtual folder, ~~said the~~ at least one virtual folder virtually organizing a first work item of a first queue of a first workflow system of the plurality of disparate workflow systems, the first queue of the first workflow system, a second work item of a second workflow system of the plurality of disparate workflow systems, a second queue of the second workflow system, a first content of a first content repository of the plurality of disparate content repositories, a second content of a second content repository of the plurality of disparate content repositories, a first folder of the first content repository, and a second folder of the second content repository, via a plurality of links comprising a first link, a second link, a third link, a fourth link, a fifth link, a sixth link, a seventh link and an eighth link;

wherein the first workflow system, the second workflow system, the first content repository and the second content repository are distributed and disparate;

the first link being to the first work item, the second link being to the second work item, the third link being to the first queue, the fourth link being to the second queue, the fifth link being to the first content, the sixth link being to the second content, the seventh link being to the first folder, and the eighth link being to the second folder; and

an application programming interface (API), executable by said the processing unit, to interface with a software application to provide access to the virtual repository, wherein said the at least one virtual folder is accessed via said the API;

wherein said the first work item of said first workflow system is accessed via said the first link and said the API, said the second work item of said the second workflow system is accessed via said the second link and said the API, said the first queue of said the first workflow system is accessed via said the third link and said the API, said the second queue of said the second workflow system is accessed via said the fourth link and said the API, said the first content of said the first content repository is accessed via said the fifth link and said the API, said the second content of said the second content repository is accessed via said the sixth link and said the API, said the first folder of said the first content repository is accessed via said the seventh link and said the API, and said the second folder of said the second content repository is accessed via said the eighth link and said the API.

Claim 2 (previously presented): The computer system of claim 1 wherein creation of the virtual repository does not replicate any of the content of the first and second content repositories, folders of the first and second content repositories, work items of the first and second workflow systems, and queues of the first and second workflow systems; and wherein the creation of the virtual repository does not impact any of the content of the first and second content repositories, folders of the first and second content repositories, work items of the first and second workflow systems, and queues of the first and second workflow systems.

Claim 3 (previously presented): The computer system of claim 1 wherein creation of the virtual repository does not impact any of an existing organization of any of the content of the first and second content repositories, folders of the first and second content repositories, work items of the first and second workflow systems, and queues of the first and second workflow systems,

wherein creation of the virtual repository does not impact any functions of any of the content of the first and second content repositories, folders of the first and second content

repositories, work items of the first and second workflow systems, and queues of the first and second workflow systems,

wherein creation of the virtual repository does not impact any indexing of any of the content of the first and second content repositories, folders of the first and second content repositories, work items of the first and second workflow systems, and queues of the first and second workflow systems, and

wherein creation of the virtual repository does not impact any security of any of the content of the first and second content repositories, folders of the first and second content repositories, work items of the first and second workflow systems, and queues of the first and second workflow systems.

Claim 4 (previously presented): The computer system of claim 1 wherein the API is in a format selected from the group consisting of Java, Component Object Model (COM), Simple Object Protocol (SOAP) Web Services, Representational State Transfer (REST) Web Services, and Web Development Components.

Claim 5 (previously presented): The computer system of claim 1 further comprising at least one of a graphical user interface and a web-based interface.

Claim 6 (currently amended): The computer system of claim 1 wherein said the at least one virtual folder is at least one node, respectively, and the first, second, third, fourth, fifth, sixth, seventh and eighth links are also nodes, thereby providing a plurality of nodes of the virtual repository, wherein the plurality of nodes are arranged in a parent-child hierarchy.

Claim 7 (currently amended): The computer system of claim 1

wherein said the at least one virtual folder also virtually organizes:

a third folder populated by saved repository search via a tenth link,

a fourth folder populated by a workflow system search via an eleventh link,

and

an external resource via a URL.

Claim 8 (previously presented): The computer system of claim 1 wherein the first, second, third, fourth, fifth, sixth, seventh and eighth links are nodes of the virtual repository that contain meta-data properties in addition to the meta-data maintained for the first work item in the first workflow system, the second work item in the second workflow system, the first queue in the first workflow system, the second queue in the second workflow system, the first content in the first content repository, the second content in the second content repository, the first folder in the first content repository and the second folder in the second content repository, wherein the meta-data properties of the nodes describe a use of the first work item, second work item, first queue, second queue, first content, second content, first folder and second folder of the virtual repository.

Claim 9 (previously presented): The computer system of claim 1 wherein the first, second, third, fourth, fifth, sixth, seventh and eighth links are nodes of the virtual repository, wherein the first content repository of the plurality of disparate content repositories has first-content-repository access control rules to the first content and the first folder, wherein the first workflow system of the plurality of disparate workflow systems has first-workflow access control rules to the first work item and the first queue, wherein the nodes of the virtual repository comprise supplemental access control rules of the virtual repository, wherein the supplemental access control rules are applied to the nodes within the virtual repository, wherein the supplemental access control rules describe supplemental security constraints to the first content and the first folder of the first content repository, wherein the supplemental access control rules describe security constraints to the first work item and first queue of the first workflow system,

wherein the first content of the first content repository is accessed in accordance with the supplemental access control rules of the virtual repository and the first-content-repository access control rules of the first content repository,

wherein the first work item of the first workflow system is accessed in accordance with the supplemental access control rules of the virtual repository and the first-workflow access control rules of the first workflow system.

Claim 10 (previously presented): The computer system of claim 1 wherein the virtual repository is exported to an XML representation and imported from the same XML representation.

Claim 11 (previously presented): The computer system of claim 1 further comprising a middleware platform to abstract a particular content repository of the plurality of content repositories of the virtual repository, and another middleware platform to abstract a particular workflow system of the plurality of workflow systems of the virtual repository.

Claim 12 (previously presented): The computer system of claim 1 further comprising adaptors to provide access to the first and second content repositories and the first and second workflow systems.

Claim 13 (previously presented): The computer system of claim 1 further comprising an adaptor toolkit to build interfaces to future developed content repositories and workflow systems.

Claims 14-23 (canceled)

Claim 24 (currently amended): A computer system to create rich relationships between content and folders of a plurality of content repositories, and work items and queues of a plurality of workflow systems, and at least one other external information source, comprising:
a processing unit; and
a memory comprising:

an application program interface (API), executable by the processing unit, to interface with a software application;

wherein the plurality of content repositories and the plurality of workflow systems are distributed and dissimilar, the plurality of content repositories comprising a first content repository and a second content repository, the plurality of workflow systems comprising a first workflow system and a second workflow system; the first content repository, the second content repository, the first workflow system and the second workflow system being distributed and dissimilar;

a plurality of nodes, created using the API, wherein the API provides an interface to the plurality of nodes, a first node of the plurality of nodes representing a first work item of a first workflow system, a second node of the plurality of nodes representing a second work item of a second workflow system, a third node of the plurality of nodes representing a first queue of the first workflow system, a fourth node of the plurality of nodes representing a second queue of the second workflow system, a fifth node of the plurality of nodes representing a first content of the first content repository, a sixth node of the plurality of nodes representing a second content of the second content repository, a seventh node of the plurality of nodes representing a first folder of the first content repository, and an eighth node of the plurality of nodes representing a second folder of the second content repository, and a ninth node of the plurality of nodes representing the other external information source;

a plurality of associations, created using the API, describing relationships between the first, second, third, fourth, fifth, sixth, seventh, eighth and ninth nodes, each association of ~~said~~ the plurality of associations having at least two nodes of the plurality of nodes that are members of ~~said~~ the each association, said each association describing a relationship between the members of that association, said each association also being a node of the plurality of nodes, wherein ~~said~~ the first, second, third, fourth, fifth, sixth, seventh, eighth and ninth nodes are members of at least one association of the plurality of associations, wherein ~~said~~ the first node and said fifth node are related via at least one particular association of ~~said~~ the plurality of associations; and

a plurality of locators comprising:

a first locator to said the first work item of said the first workflow system, the first locator leverages workflow integration middleware to reference said the first work item of said the first workflow system;

a second locator to said the second work item of said the second workflow system, the second locator leverages said the workflow integration middleware to reference said the second work item of said the second workflow system;

a third locator to the first queue of said the first workflow system, the third locator leverages said the workflow integration middleware to reference said the first queue of said the first workflow system;

a fourth locator to said the second queue of said the second workflow system, the fourth locator leverages said the workflow integration middleware to reference said the second queue of said the second workflow system;

a fifth locator to said the first content of said the first content repository, the fifth locator leverages content integration middleware to reference said the first content of said the first content repository;

a sixth locator to said the second content of said the second content repository, the sixth locator leverages said the content integration middleware to reference said the second content of said the second content repository;

a seventh locator to said the first folder of said the first content repository, the seventh locator leverages said the content integration middleware to reference said the first folder of said the first content repository;

an eighth locator to said the second folder of said the second content repository, the eighth locator leverages said the content integration middleware to reference said the second folder of said the second content repository; and

an extensible locator interface to provide at least one additional locator to the external information source;

said the API providing access to the first content, the second content, the first folder, the second folder, the first work item, the second work item, the first queue, the second queue and the external information source, wherein said the first work item of said the first

workflow system is accessed via said the first node, said the first locator and said the workflow integration middleware; said the second work item of said the second workflow system is accessed via said the second node, said the second locator and said the workflow integration middleware; said the first queue of said the first workflow system is accessed via said the third node, said the third locator and said the workflow integration middleware; said the second queue of said the second workflow system is accessed via said the fourth node, said the fourth locator and said the workflow integration middleware; said the first content of said the first content repository is accessed via said the fifth node, said the fifth locator and said the content integration middleware; said the second content of said the second content repository is accessed via said the sixth node, said the sixth locator and said the content integration middleware; said the first folder of said the first content repository is accessed via said the seventh node, said the seventh locator and said the content integration middleware; said the second folder of said the second content repository is accessed via said the eighth node, said the eighth locator and said the content integration middleware, said the external information source is accessed via said the ninth node and said the ninth locator.

Claim 25 (previously presented): The computer system of claim 24 wherein the API is in a format selected from the group consisting of Java, Component Object Model (COM), Simple Object Protocol (SOAP) Web Services, Representational State Transfer (REST) Web Services, and Web Development Components.

Claim 26 (previously presented): The computer system of claim 24 further comprising at least one of a graphical user interface and a web-based interface.

Claim 27 (currently amended): The computer system of claim 24 wherein said the first, second, third, fourth, fifth, sixth, seventh, eighth and ninth nodes participate in relationships with information, said the information for each node of said the first, second, third, fourth, fifth, sixth, seventh, eighth and ninth nodes comprising at least one of: meta-data describing said the each node, at least one role played in at least one association of said the plurality of

associations with another node, zero or more scoped names, a unique identifier of the subject of ~~said~~ the each node, and 0 or more node types.

Claim 28 (canceled).

Claim 29 (currently amended): The computer system of claim 24 wherein ~~said~~ the each association of ~~said~~ the plurality of associations has at least two of ~~said~~ the members that are nodes playing a specific named role in ~~said~~ the each association.

Claim 30 (previously presented): The computer system of claim 24 wherein a member represents a specific role a node plays in the association.

Claim 31 (previously presented): The computer system of claim 30 wherein the member has a player specifying the node playing the role in the association.

Claim 32 (currently amended): The computer system of claim 24 wherein the associations have 0 or more association types, wherein the association types have logical properties describing the type of the relationship, wherein ~~said~~ the logical properties comprise at least one of: an allowed cardinality of the relationship, allowed members of the relationship, required members of the relationship, a transitivity of the relationship, a delete propagation across the relationship, and a save propagation across the relationship.

Claims 33-38 (canceled).

Claim 39 (previously presented): A computer system to provide notification of at least one event handler, comprising:

a processing unit; and

a memory comprising:

a first application program interface (API), executable by the processing unit, to interface with a software application;

a plurality of subscriptions to a plurality of subscribed-to-items, respectively, wherein the first API interfaces to the software application to create the plurality of subscriptions; the subscribed-to-items comprising a first content of a first content repository, a first folder of the first content repository, a first work item of a first queue of a first workflow system, a first queue of the first workflow system, a second content of a second content repository, a second folder of the second content repository, a second work item of a second workflow system, a second queue of the second workflow system;

wherein the first content repository, the second content repository, the first workflow system and the second workflow system are disparate and distributed;

wherein the plurality of subscriptions are requests to track when at least one of an addition, change and delete occurs to any of the subscribed-to-items, respectively, the subscribed-to-items comprising, the first content, the first folder, the first work item, the first queue, the second content, the second folder, the second work item and the second queue; the plurality of subscriptions comprising a first subscription, a second subscription, a third subscription, a fourth subscription, a fifth subscription, a sixth subscription, a seventh subscription, and an eighth subscription; the first subscription to track when at least one of an addition, change and delete occurs to the first content, the second subscription to track when at least one of an addition, change and delete occurs to the first folder, the third subscription to track when at least one of an addition, change and delete occurs to the first work item, the fourth subscription to track when at least one of an addition, change and delete occurs to the first queue, the fifth subscription to track when at least one of an addition, change and delete occurs to the second content, the sixth subscription to track when at least one of an addition, change and delete occurs to the second folder, the seventh subscription to track when at least one of an addition, change and delete occurs to the second work item, the eighth subscription to track when at least one of an addition, change and delete occurs to the second queue; and an event path defined per a logical group comprising a timer, a subscription group processor that creates events based on the plurality of subscriptions in response to the timer, a

content monitor that detects change in the first content, first folder, second content, second folder, first work item, first queue, second work item, and second queue based on the events, an event filter that filters uninteresting change and interesting change based on the change detected by the content monitor, and an event handler that receives the interesting change, wherein the software application configures the event path via the first API.

Claim 40 (previously presented): The computer system of claim 39 wherein the timer initiates periodic polling of at least one of the first and second content repositories and the first and second workflow systems to detect the change.

Claim 41 (previously presented): The computer system of claim 39 wherein the plurality of subscriptions are organized into at least one subscription group and the subscription group processor initiates the events on subscriptions of the at least one subscription group.

Claim 42 (previously presented): The computer system of claim 39 wherein the content monitor comprises a software plug-in to detect the change in the subscribed-to-items.

Claim 43 (previously presented): The computer system of claim 39 wherein the event filter comprises at least one software plug-in that filters the interesting and uninteresting change in the subscribed-to-items based on a meta-data value of at least one of the subscribed-to-items.

Claim 44 (previously presented): The computer system of claim 39 wherein a subscription context is made available to the content monitor, event filter and event handler with access selected from at least one of: access to a live content integration middleware session, access to a live workflow integration middleware session, access to a statistics reporting API, access to an error reporting API, access to a logging API, and access to an active subscription.

Claim 45 (currently amended): The computer system of claim 39 further comprising statistics software to gather runtime statistics on the events passing through the event path and displaying ~~said~~ the statistics.

Claims 46-47 (canceled)

Claim 48 (currently amended): A computer-implemented method of virtually organizing content of a plurality of disparate content repositories, folders of the plurality of disparate content repositories, work items of a plurality of disparate workflow systems, and queues of the plurality of disparate workflow systems, comprising:

providing an application programming interface (API) to a virtual repository; and
creating the virtual repository via the API, wherein the virtual repository comprises at least one virtual folder, ~~said the~~ at least one virtual folder virtually organizing a first work item of a first queue of a first workflow system of the plurality of disparate workflow systems, the first queue of the first workflow system, a second work item of a second workflow system of the plurality of disparate workflow systems, a second queue of the second workflow system, a first content of a first content repository of the plurality of disparate content repositories, a second content of a second content repository of the plurality of disparate content repositories, a first folder of the first content repository, and a second folder of the second content repository, via a plurality of links comprising a first link, a second link, a third link, a fourth link, a fifth link, a sixth link, a seventh link and an eighth link;

wherein the first workflow system, the second workflow system, the first content repository and the second content repository are distributed and disparate;;

the first link being to the first work item, the second link being to the second work item, a third link being to the first queue, a fourth link being to the second queue, a fifth link being to the first content, a sixth link being to the second content, a seventh link being to the first folder, and an eighth link being to the second folder; and

accessing the virtual repository via the API, wherein ~~said~~ the first work item is accessed via the API and the first link, ~~said~~ the second work item is accessed via the API and the second link, ~~said~~ the first queue is accessed via the API and the third link, ~~said~~ the second queue is accessed via the API and the fourth link, ~~said~~ the first content is accessed via the API and the fifth link, ~~said~~ the second content is accessed via the API and the sixth link, ~~said~~ the first folder is accessed via the API and the seventh link, and ~~said~~ the second folder is accessed via the API and the eighth link.

Claim 49 (canceled)

Claim 50 (currently amended): A computer-implemented method of creating rich relationships between content, folders, work items and queues that exist in a plurality of content repositories, a plurality of workflow systems and at least one external information source, comprising:

providing an application program interface (API) to interface to a software application;

wherein the plurality of content repositories and the plurality of workflow systems are distributed and dissimilar, the plurality of content repositories comprising a first content repository and a second content repository, the plurality of workflow systems comprising a first workflow system and a second workflow system; the first content repository, the second content repository, the first workflow system and the second workflow system being distributed and dissimilar;

creating, via the API, a plurality of nodes, wherein the API provides access to the plurality of nodes, a first node of the plurality of nodes representing a first work item of a first workflow system, a second node of the plurality of nodes representing a second work item of a second workflow system, a third node of the plurality of nodes representing a first queue of the first workflow system, a fourth node of the plurality of nodes representing a second queue of the second workflow system, a fifth node of the plurality of nodes representing a first content of the first content repository, a sixth node of the

plurality of nodes representing a second content of the second content repository, a seventh node of the plurality of nodes representing a first folder of the first content repository, an eighth node of the plurality of nodes representing a second folder of the second content repository, and a ninth node of the plurality of nodes representing the external information source;

creating, via the API, a plurality of associations describing relationships between the first, second, third, fourth, fifth, sixth, seventh, eighth and ninth nodes, each association of ~~said the~~ plurality of associations having at least two nodes of the first, second, third, fourth, fifth, sixth, seventh, eighth, and ninth nodes that are members of ~~said the~~ each association, ~~said the~~ each association describing a relationship between the members of that association, ~~said the~~ each association also being a node of ~~said the~~ plurality of nodes, wherein ~~said the~~ first, second, third, fourth, fifth, sixth, seventh, eighth and ninth nodes are members of at least one association of the plurality of associations, wherein said first node representing ~~said the~~ first work item of ~~said the~~ first workflow system and ~~said the~~ fifth node representing ~~said the~~ first content of ~~said the~~ first content repository are related via at least one particular association of ~~said the~~ plurality of associations; and

providing a plurality of locators comprising:

a first locator to ~~said the~~ first work item of ~~said the~~ first workflow system, the first locator leverages workflow integration middleware to reference ~~said the~~ first work item of ~~said the~~ first workflow system;

a second locator to ~~said the~~ second work item, the second locator leverages ~~said the~~ workflow integration middleware to reference ~~said the~~ second work item from ~~said the~~ second workflow system;

a third locator to ~~said the~~ first folder of ~~said the~~ first workflow system, the third locator leverages ~~said the~~ workflow integration middleware to reference ~~said the~~ first folder of ~~said the~~ first workflow system,

a fourth locator to ~~said the~~ second queue, the fourth locator leverages ~~said the~~ workflow integration middleware to reference ~~said the~~ second queue of ~~said the~~ second workflow system;

a fifth locator to ~~said the~~ first content of ~~said the~~ first content repository, the fifth locator leverages content integration middleware to reference ~~said the~~ first content of ~~said the~~ first content repository;

a sixth locator to ~~said the~~ second content of ~~said the~~ second content repository, the sixth locator leverages ~~said the~~ content integration middleware to reference ~~said the~~ second content of ~~said the~~ second content repository;

a seventh locator to ~~said the~~ first folder of ~~said the~~ first content repository, the seventh locator leverages ~~said the~~ content integration middleware to reference ~~said the~~ first folder of ~~said the~~ first content repository;

an eighth locator to an eighth external entity, the eighth external entity being ~~said the~~ second folder, the eighth locator leverages ~~said the~~ content integration middleware to reference ~~said the~~ second folder of ~~said the~~ second content repository; and

an extensible locator interface to provide at least one additional locator to another external information source; and

accessing ~~said the~~ first content, second content, first folder, second folder, first work item, second work item, first queue, second queue and external information source via ~~said the~~ API, wherein ~~said the~~ first work item of ~~said the~~ first workflow system is accessed via ~~said the~~ first node and ~~said the~~ first locator; ~~said the~~ second work item of ~~said the~~ second workflow system is accessed via ~~said the~~ second node and ~~said the~~ second locator; ~~said the~~ first queue of ~~said the~~ first workflow system is accessed via ~~said the~~ third node and ~~said the~~ third locator; ~~said the~~ second queue of ~~said the~~ second workflow system is accessed via ~~said the~~ fourth node and ~~said the~~ fourth locator; ~~said the~~ first content of ~~said the~~ first content repository is accessed via ~~said the~~ fifth node and ~~said the~~ fifth locator; ~~said the~~ second content of ~~said the~~ second content repository is accessed via ~~said the~~ sixth node and ~~said the~~ sixth locator; ~~said the~~ first folder of ~~said the~~ first content repository is accessed via ~~said the~~ seventh node and ~~said the~~ seventh locator; ~~said the~~

second folder of ~~said the~~ second content repository is accessed via ~~said the~~ eighth node and ~~said the~~ eighth locator; and ~~said the~~ external information source being accessed via ~~said the~~ ninth node and ~~said the~~ ninth locator.

Claim 51 (canceled)

Claim 52 (currently amended): The computer system of Claim 39 wherein each subscription of the plurality of subscriptions is stored with at least one of: meta-data describing ~~said the~~ each subscription, encrypted user credentials, a representation of a state of a subscribed-to-item of ~~said the~~ each subscription, and a membership in a logical subscription group.

Claim 53 (original): The computer system of Claim 39 wherein the API is in a format selected from the group consisting of Java, Component Object Model (COM), Simple Object Protocol (SOAP) Web Services, Representational State Transfer (REST) Web Services, and Web Development Components.

Claim 54 (original): The computer system of Claim 39 further comprising at least one of a graphical user interface and a web-based interface.

Claim 55 (previously presented): The computer system of Claim 39 wherein at least two of the subscriptions of the plurality of subscriptions with a common polling interval are organized into a logical group.

Claim 56 (previously presented): The computer system of Claim 39 wherein at least two of the subscriptions of the plurality of subscriptions with a common event path are organized into a logical group.

Claim 57 (previously presented): A computer-implemented method of providing notification of at least one-event handler, comprising:

providing a first application program interface (API) to interface with a software application;

creating, via the first API, a plurality of subscriptions to a plurality of subscribed-to-items, respectively, the subscribed-to-items comprising a first content of a first content repository, a first folder of the first content repository, a first work item of a first workflow system, a first queue of the first workflow system, a second content of a second content repository, a second folder of the second content repository, a second work item of a second workflow system, a second queue of the second workflow system;

wherein the first content repository, the second content repository, the first workflow system and the second workflow system are disparate and distributed;

wherein the subscriptions are requests to track when at least one of an addition, change and delete occurs to any of the subscribed-to-items, respectively, the subscribed-to-items comprising the first content, the first folder, the first work item, the first queue, the second content, the second folder, the second work item and the second queue; the plurality of subscriptions comprising a first subscription, a second subscription, a third subscription, a fourth subscription, a fifth subscription, a sixth subscription, a seventh subscription, and an eighth subscription; the first subscription to track when at least one of an addition, change and delete occurs to the first content, the second subscription to track when at least one of an addition, change and delete occurs to the first folder, the third subscription to track when at least one of an addition, change and delete occurs to the first work item, the fourth subscription to track when at least one of an addition, change and delete occurs to the first queue, the fifth subscription to track when at least one of an addition, change and delete occurs to the second content, the sixth subscription to track when at least one of an addition, change and delete occurs to the second folder, the seventh subscription to track when at least one of an addition, change and delete occurs to the second work item, the eighth subscription to track when at least one of an addition, change and delete occurs to the second queue;

configuring, via the first API, an event path defined per a logical group comprising a timer, a subscription group processor that creates events based on the plurality of subscriptions in response to the timer, a content monitor that detects change in the first content, first folder, second content, second folder, first work item, first queue, second work item, and second queue based on the events, an event filter that filters uninteresting change and interesting change based on the change detected by the content monitor; and

receiving, by the event handler, the interesting change.

Claim 58 (currently amended): The computer system of claim 24 wherein the associations have association types, wherein the association types have logical properties describing the type of the relationship, wherein ~~said~~ the logical properties comprise an allowed cardinality of the relationship, allowed members of the relationship, required members of the relationship, a transitivity of the relationship, a delete propagation across the relationship, and a save propagation across the relationship.